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PATENT SPECIFICATION

DRAWINGS ATTACHED

325,286

925,286



Date of Application and filing Complete Specification: March 1, 1962.
No. 7939/62.

Application made in Germany (No. U7849 VIIa/52a) on March 4, 1961.
Complete Specification Published: May 8, 1963.

ERRATUM

SPECIFICATION NO. 925,286

Page 1, line 12, for "ths" read "the"

THE PATENT OFFICE,
4th July 1963.

DS 74916/1(11)/R.109 200 6/63 PL

10 thread chain stitches and a method of making
the same.

With this usual type of single chain stitch
consisting of only one needle thread, the loop
of thread of a previous stitch is spread out to
15 allow the needle to carry the thread through
the loop when making the following stitch.
Thus each loop of thread secures the loop of
the previous stitch. However, each loop allows
the following loop to slip through it freely so
20 that a single chain stitch of this kind can be
easily opened or ripped up by pulling in the
direction opposite to that of stitch formation.
This is sometimes desirable, but is often found
to be disadvantageous.

25 In order to secure a single thread chain
stitch against opening or ripping, the thread
of the last loop of a seam secured by the stitch
is usually finished and cut off in such a manner
that it secures the next loop, thus preventing
30 the same from becoming loose. This, however,
serves as a securing means only at an end of
the seam. If the thread becomes broken within
the seam, ripping or loosening of the stitch can
occur from this point on in a direction opposite
35 to the direction of stitch formation.

For preventing such ripping or loosening of
a seam it has already been proposed to make a
knot within each individual loop of a chain
stitch. Apart from the fact that the making of
40 such a knot is a complicated and slow affair, it
prevents the proper formation of a single, single
thread chain stitch. Moreover, after a stitch
has been formed, the knot prevents the thread
from being pulled tight so that the stitches lie
45 somewhat loosely in the fabric, with the result

According to this invention, a single thread 55
chain stitch is provided in which the two por-
tions of thread of each loop are completely
wrapped around by the loop of the previous
stitch, the previous loop being spirally wrapped
about the following loop.

The invention also includes a method of 60
making this chain stitch in which the thread of
each stitch is led twice through the loop of the
previous stitch, the loop of the previous stitch
being twisted at least once through 180° in 65
the region between the first and second pene-
trations of the loop of the following stitch.
Preferably, the loop of the previous stitch is
extended in a direction opposite to the direction
of transport of the fabric beyond the point of 70
entry of the needle, where it is then twisted
and the end of the loop turned back to come
into the path of the needle. The loop of the
previous stitch is preferably widened before 75
the needle enters for the formation of the
following stitch, such widening occurring in
the region of the first penetration of the needle
and in the region of the second penetration of
the needle.

In the single thread chain stitch according 80
to the present invention, the loop of the previous
stitch is wrapped tightly about the base of the
loop of the following stitch. Thus, the loop
of the previous stitch is not open but surrounds
the loop of the following stitch, or rather, the 85
base thereof, on all sides. The two portions
of thread forming the base of the following
loop are thus clamped in the previous loop
and the pull on the thread, together with the
friction between the threads, produces a 90

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Index at Acceptance:—Class 112, F1.

International Classification:—D05b.

COMPLETE SPECIFICATION

Improvements in or relating to Chain Stitches and method of making the same

We, UNION SPECIAL MASCHINENFABRIK Gesellschaft mit beschränkter Haftung, a German Company, of 33a, Schwabstrasse, Stuttgart-W, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to single thread chain stitches and a method of making the same.

With this usual type of single chain stitch consisting of only one needle thread, the loop of thread of a previous stitch is spread out to allow the needle to carry the thread through the loop when making the following stitch. Thus each loop of thread secures the loop of the previous stitch. However, each loop allows the following loop to slip through it freely so that a single chain stitch of this kind can be easily opened or ripped up by pulling in the direction opposite to that of stitch formation. This is sometimes desirable, but is often found to be disadvantageous.

In order to secure a single thread chain stitch against opening or ripping, the thread of the last loop of a seam secured by the stitch is usually finished and cut off in such a manner that it secures the next loop, thus preventing the same from becoming loose. This, however, serves as a securing means only at an end of the seam. If the thread becomes broken within the seam, ripping or loosening of the stitch can occur from this point on in a direction opposite to the direction of stitch formation.

For preventing such ripping or loosening of a seam it has already been proposed to make a knot within each individual loop of a chain stitch. Apart from the fact that the making of such a knot is a complicated and slow affair, it prevents the proper formation of a single, single thread chain stitch. Moreover, after a stitch has been formed, the knot prevents the thread from being pulled tight so that the stitches lie somewhat loosely in the fabric, with the result

that two layers of fabric are not closely sewn together.

An object of the present invention is to provide a single thread chain stitch and a method of making the same, which obtains in a simple manner a considerably better security against ripping or loosening of the stitch than is the case with conventional single thread chain stitches.

According to this invention, a single thread chain stitch is provided in which the two portions of thread of each loop are completely wrapped around by the loop of the previous stitch, the previous loop being spirally wrapped about the following loop.

The invention also includes a method of making this chain stitch in which the thread of each stitch is led twice through the loop of the previous stitch, the loop of the previous stitch being twisted at least once through 180° in the region between the first and second penetrations of the loop of the following stitch. Preferably, the loop of the previous stitch is extended in a direction opposite to the direction of transport of the fabric beyond the point of entry of the needle, where it is then twisted and the end of the loop turned back to come into the path of the needle. The loop of the previous stitch is preferably widened before the needle enters for the formation of the following stitch, such widening occurring in the region of the first penetration of the needle and in the region of the second penetration of the needle.

In the single thread chain stitch according to the present invention, the loop of the previous stitch is wrapped tightly about the base of the loop of the following stitch. Thus, the loop of the previous stitch is not open but surrounds the loop of the following stitch, or rather, the base thereof, on all sides. The two portions of thread forming the base of the following loop are thus clamped in the previous loop and the pull on the thread, together with the friction between the threads, produces a

comparatively high resistance to ripping or loosening of the seam. On the other hand, this wrapping of a following loop by a previous one allows the thread to be easily drawn to secure tightly the stitch in the fabric.

The single thread chain stitch according to the present invention can be made in a simple manner with only a few stitch forming instrumentalities. The previous loop is, as compared with the stitch formation in the conventional single chain stitch, exposed to the descending needle merely in such a manner that the needle passes twice through this loop. At the same time, the loop is twisted in the region between the first penetration of the needle and its second penetration, thus causing the wrapping of the needle and consequently of the thread which it carries.

The invention is further described with reference to the accompanying drawings which illustrate by way of example a single thread chain stitch according to the invention and in which:—

Fig. 1 is a longitudinal section through a seam; and

Fig. 2 a plan view, partially in section, of the seam.

Referring to the drawings, an entry 1 of the needle through the two layers of fabric *a*, *b* forms a loop 2 which is wrapped once about a loop 4 formed at a needle entry 3. The loop 4 is in turn wrapped about a loop 6 formed at an entry 5, and the loop 6 is wrapped about a loop 8 formed at an entry 7.

This wrapping is effected spirally and is formed by extending the loop (as illustrated at 6) against the direction of feed *C* of the fabric beyond the entry 7 of the needle and turning the end of the loop back in the direction of feed to come into the path of the needle (not shown). Thus the needle penetrates once between two portions 9 of thread and once between two portions 10 of thread so that the thread of each stitch is led twice through the loop of the previous stitch. The thread portions 10 are twisted through substantially 180° with

respect to thread portions 9. As can be seen from Fig. 2, a complete wrapping of each following loop is achieved. The loop of the previous stitch is widened before the needle enters for the formation of a following stitch. This widening occurs in the region of the first penetration of the needle and in the region of the second penetration of the needle.

WHAT WE CLAIM IS:—

1. A single thread chain stitch in which the two portions of thread of each loop are completely wrapped around by the loop of the previous stitch, the previous loop being spirally wrapped about the following loop.

2. A method of making a chain stitch as claimed in claim 1, in which the thread of each stitch is led twice through the loop of the previous stitch, the loop of the previous stitch being twisted at least once through substantially 180° in the region between the first and second penetrations of the loop of the following stitch.

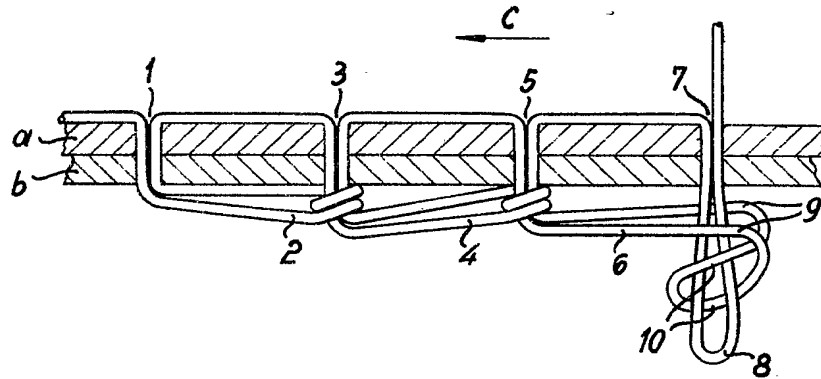
3. A method as claimed in claim 2, in which the thread of the previous stitch is extended against the direction of feed of the fabric beyond the point of entry of the needle, where it is twisted and turned back in the direction of feed to come into the path of the needle again.

4. A method as claimed in claim 2 or 3, in which the loop of the previous stitch is widened before the needle enters for the formation of the following stitch, such widening occurring in the region of the first penetration of the needle and in the region of the second penetration of the needle.

5. A single thread chain stitch substantially as herein described with reference to and as illustrated in the accompanying drawings.

6. A method of forming a single thread chain stitch substantially as herein described with reference to the accompanying drawings.

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FIG. 1**FIG. 2**